

***NATIONAL WEATHER SERVICE INSTRUCTION 10-810
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***Operations and Services
Aviation Weather Services, NWSPD 10-8***

DOMESTIC PRODUCTS

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SIGNED
Gregory A. Mandt
Director, Office of Climate, Water, and Weather Services

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Date

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1. **Purpose.** This instruction lists National Weather Service (NWS) offices and the official domestic (including Alaska and Hawaii) aviation weather products they are responsible for issuing.

2. **Background.** There are several different levels of NWS offices under the administrative jurisdiction of regional headquarters which issue some type of forecast product. Technological advancements make it possible to develop graphical and/or textual products at each of these offices. However, in order to ensure the general public receives the highest level of quality while keeping spatial and temporal consistency, all national aviation products will be approved by the Director, Office of Climate, Water, and Weather Services before offices issue them as official.

3. **Aviation Weather Center (AWC).** The AWC, a Meteorological Watch Office (MWO) for the International Civil Aviation Organization (ICAO), is located in Kansas City, Missouri, and operates under the supervision of the National Centers for Environmental Prediction.

AWC issues the following products, which are covered in further detail in NWS Instruction (NWSI) 10-811, International Products, in support of Federal Aviation Administration (FAA) air traffic controllers and the National Airspace System (NAS).

- a. Airman’s Meteorological Advisories (AIRMET) (Bulletin identifier - WA):
AIRMET bulletins contain details of potentially hazardous conditions over the United States and adjacent waters. The continental U.S. portion is produced as six separate bulletins four times daily for designated geographical areas when one or more of the following conditions occurs, or is expected to occur, and affect an area of at least 3,000 square miles :
 - (1) Moderate icing
 - (2) Moderate turbulence
 - (3) Sustained surface wind of 30 knots or more
 - (4) Ceilings less than 1,000 feet and/or visibility less than three (3) miles affecting over 50 percent of an area at any one time
 - (5) Extensive mountain obscuration

- b. Significant Meteorological Advisories (SIGMET): A SIGMET contains information on specified weather phenomena of an intensity and/or extent which

concerns pilots and operators of all aircraft. When weather conditions meeting or exceeding criteria for SIGMET issuance occur or are expected to occur within two (2) hours, a SIGMET will be issued. In the continental United States and coastal waters, SIGMETs have been separated into two classes, convective and nonconvective.

Convective SIGMETs (WST) concern only thunderstorms and related phenomena (tornadoes, heavy precipitation, hail, and high surface winds) and imply the associated occurrence of turbulence, icing, and convective Low Level Wind Shear (LLWS). They are issued hourly and are valid for up to two (2) hours. Each hourly issuance supersedes and cancels the remainder of the previous issuance. Contained in each WST bulletin is an Outlook valid for the period from two (2) to six (6) hours after the issuance time of the bulletin.

Nonconvective SIGMETs (WS) are valid for up to four (4) hours and concern turbulence, icing, dust, sand, volcanic eruptions, or volcanic ash when of sufficient intensity and areal extent, defined as usually an area approximately one (1) latitude degree squared or approximately 3000 square miles. Exception: Mountain wave does not have to reach 3000 square miles.

- c. Area Forecasts (FA): The FA provides an overview of weather conditions which could impact aviation operations over the Continental U.S. and adjacent waters. Therefore, it serves as a flight planning and weather briefing aid for general aviation (GA) pilots, and civil and military aviation operations. The continental U.S. portion is produced as six separate bulletins three times daily.
- d. Graphics
 - (1) The low-level significant weather chart is a significant weather forecast for the continental U.S, from surface to Flight Level (FL) 240, depicted as a snapshot for 12 and 24 hours. The chart combines forecasted weather features and precipitation produced by the Hydrometeorological Prediction Center in Camp Springs, Maryland with panels depicting significant weather and freezing levels produced at the AWC.
 - (2) The Collaborative Convective Forecast Product (CCFP) is a component of NAS Collaborative Decision Making (CDM), produced by collaboration of public and private sector meteorologists. The CCFP improves the decision making process within the CDM framework, aiding reductions in delays, reroutes and cancellations influenced by significant convective events.
- e. Binary Products
 - (1) The National Convective Weather Diagnostic depicts current convection, and its companion, the National Convective Weather Forecast shows

extrapolated forecast positions of significant current convection. They are supplements to Convective SIGMETs, providing additional information for convective weather avoidance and flight planning.

- (2) The Current Icing Potential is an automatically generated, gridded icing diagnostic of current icing potential, updated hourly. It can be used to supplement AIRMETs and SIGMETs, but does not substitute for intensity and forecast information contained in them.

4. Alaska Aviation Weather Unit (AAWU). The AAWU, located in Anchorage, Alaska, under the supervision of the NWS's Alaska Region, is an ICAO MWO. They issue the following products, also covered in NWSI 10-811, for the airspace over the state of Alaska and adjacent coastal waters:

a. Text Forecasts

- (1) SIGMETs: Issued when required for the Anchorage Flight Information Region (FIR)
- (2) AIRMETs: Issued under three (3) separate World Meteorological Organization (WMO) headers four (4) times daily for mainland and coastal Alaska. This includes AIRMETs in effect for each aviation zone.
- (3) FAs: Issued under seven (7) separate WMO headers four (4) times daily for mainland and coastal Alaska, covering 25 zones. Each aviation zone forecast includes sections on clouds, weather, turbulence and icing. Some zones include forecasts for specific mountain passes. Zone forecasts include AIRMET and SIGMET information if applicable.
- (4) Volcanic Ash Advisory (FV): Issued every six (6) hours when required for the Anchorage FIR and northeast Russia (north of 60N latitude and east of 150E longitude). FVs include information on volcanic eruptions, and current and forecast areas of volcanic ash.
- (5) Volcanic Ash SIGMET: Issued whenever airborne volcanic ash threatens the Anchorage FIR.

b. Graphic Products

- (1) Graphic Area Forecast: A six hour forecast containing a suite of four products:
 - (a) Surface Map and Weather
 - (b) Areas of Instrument Flight Rules (IFR) and Marginal Visual Flight Rules (MVFR) weather
 - (c) In-Flight icing and freezing levels

(d) Turbulence

These products are issued four (4) times daily, one hour after the issuance of the text area forecast (FA), and they cover all of Alaska, northwest Canada and extreme northeast Russia.

- (2) Significant Weather (Low and Mid level - below FL250): Contains a suite of three forecast graphics (24 hours, 36 hours and 48 hours from model time). Each graphic includes surface map, areas of IFR and MVFR conditions, freezing level and areas of moderate or greater turbulence. It is issued two (2) times daily and covers all of Alaska, northwest Canada and extreme northeast Russia.

5. CWSU. CWSUs are joint FAA/NWS meteorological units directly supporting the FAA's 21 Air Route Traffic Control Centers (ARTCC). The products each CWSU issues are covered in NWSI 10-803, Support to Air Traffic Control Facilities and support its respective ARTCC. These products are:

- a. Meteorological Impact Statement (MIS): An unscheduled flow control and flight operations planning forecast. It is a forecast and briefing product for personnel at ARTCCs, the Air Traffic Control System Command Center in Herndon, Virginia, terminal radar approach control facilities and air traffic control towers responsible for making flow control-type decisions. The MIS is valid from 2 to 12 hours after issuance time, detailing weather conditions expected to adversely impact air traffic flow in the CWSU's area of responsibility. They are also valid for conditions existing when CWSU operations begin, provided the adverse weather conditions will persist for at least three (3) hours. A MIS may be tailored to meet the unique requirements of the host ARTCC.
- b. Center Weather Advisories: An aviation weather warning for conditions which either meet or approach national in-flight advisory (AIRMET, SIGMET or SIGMET for convection) criteria, or will adversely impact the safe flow of air traffic within the ARTCC's area of responsibility. It is primarily used by air crews to anticipate and avoid adverse weather conditions in the en route and terminal environments.

6. Weather Forecast Office (WFO). WFOs are multi-purpose, local level weather forecast centers which produce, among their suite of services, aviation-related products. These products may include:

- a. Terminal Aerodrome Forecasts (TAF): The expected meteorological conditions significant to aviation at an airport (terminal) for a specified time period, usually 24 hours. The U.S. definition of a terminal is the area within five (5) statute miles of the center of an airport's runway complex. TAFs are covered in NWSI 10-813, Terminal Aerodrome Forecasts.

- b. Transcribed Weather Broadcasts (TWEB): NWS-prepared text products, valid for a 12-hour period, for routes and local vicinities describing specific information on sustained surface winds (25 knots or greater), visibility, weather and obstructions to vision, sky conditions (coverage and ceiling/cloud heights), mountain obscurement, and non-convective low-level wind shear. The routes are 50-nautical mile (NM) wide corridors (25 NM either side) along a line connecting the anchor points of the route, and a 25 NM radius semi-circle around the end points. The anchor and end points are TAF locations. TWEBs are covered in NWSI 10-805, Transcribed Weather Broadcasts.
- c. Airport Weather Warnings (AWW): A forecast for weather phenomena which can adversely impact airport ground operations. This forecast is useful to airport managers, fix-based operators, airline ground personnel and others responsible for the safety of ground operations. The AWW is issued based on weather criteria specific to each airport, and may include the issuance of any NWS warning product which affects the airport (Five statute mile radius from the center of the airport complex). These criteria reflect local users' requirements, and are agreed upon between local airport management and the supporting WFO. Not all WFOs produce AWWs. AWWs are covered in NWSI 10-801, Airport Weather Warnings.
- d. Soaring Forecasts: In areas where soaring or gliding are popular and Flight Service Stations have a high demand for soaring briefings, WFOs may produce a soaring forecast. The WFO is encouraged to use programs which automatically produce this information from sounding and model data, using as little manual input as possible, and it should be noted the data will not be updated until the next scheduled issuance. The soaring forecasts will only be produced for specified locations and times, and may be seasonal. Non-routine soaring forecasts will not be provided for special events such as soaring meets.

At a minimum, a soaring forecast should include winds and temperatures aloft (usually at customer-requested levels), stability indices, and aviation-related hazards. Soaring can differ in many parts of the U.S. Therefore, format or content which meets regional-specific customer needs may be added or modified through regional supplements to this directive.

7. **MWO.** WFOs Honolulu and Guam are also designated as MWOs for ICAO. As a result of this unique designation, they are the only WFOs to issue certain products, all as text. These are:

- a. WFO Honolulu:
 - 1. SIGMETs: Issued when required for convection (including severe squall lines, hail, funnel clouds, and tornadoes), turbulence, icing, sandstorms/duststorms, tropical cyclones, mountain waves, waterspouts, and airborne volcanic ash.

2. AIRMETs: Issued for convection, turbulence, icing, mountain obscuration, IMC conditions - clouds and/or visibility, LLWS, and surface winds for 21 areas.
3. FAs: Each aviation zone forecast includes sections on clouds, weather, turbulence and icing. Zone forecasts include AIRMET and SIGMET information if applicable.
4. Route Forecasts (ROFOR): Coded ROFORs for regularly scheduled flights across portions of the Pacific Ocean. They also may be prepared upon special request.
5. Winds and Temperatures Aloft Forecast: Issued four (4) times daily for forecasted winds and temperatures up to 30,000 feet over the four (4) major airports in Hawaii. See NWSI 10-812, Aviation Wind and Temperature Aloft Forecasts.

b. WFO Guam

1. SIGMETs: Issued when required for convection, turbulence, icing, sandstorm/duststorm, and tropical cyclones (WC).
2. Volcanic Ash SIGMET: Issued whenever airborne volcanic ash threatens any area.
3. Route Forecasts (ROFOR): ROFORs are only prepared upon special request.

All products issued by WFOs Honolulu and Guam are covered in NWSI 10-811.